

A20
Cml
cycled 25 times at 96°C for 10 seconds, 37°C for 1 minute, and 70°C for 5 minutes. **Lane 9** includes nonpurified, 10-base, ³²P -labeled primer that was incubated with double-stranded DNA plasmid at 96°C for 3 minutes, the reaction was brought to 37°C for 10 minutes, during which time *Taq* DNA polymerase and all four gamma-modified dNTPs were added. The reaction was cycled 25 times at 96°C for 10 seconds, 37°C for 1 minute, and 70°C for 5 minutes.

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Thus, for the *Taq* polymerase or the HIV1 reverse transcriptase, improved fidelity, due to the use of the gamma-modified dNTPs of this invention, enables single-molecule DNA sequencing. However, not all polymerases equally utilize the gamma-modified nucleotides of this invention, specifically, Klenow, Sequenase, HIV-1 reverse transcriptase and *Taq* polymerases incorporate the modified nucleotides of this invention, while the *Pfu* DNA polymerase does not appear to incorporate the modified nucleotides of this invention.

In the Claims

Clean Copy of Amended Claims

A22
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1 1.(amended) A composition comprising a polymerizing agent including at least one molecular and/or atomic tag covalently bonded to a site on the polymerizing agent, where a detectable property of the tag undergoes a change before, during and/or after monomer incorporation.

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7.(amended) A composition comprising a polymerase or reverse transcriptase including at least one molecular and/or atomic tag covalently bonded to a site on the polymerase, where a detectable property has a first value when the polymerase is in a first state and a second value when the polymerase is in a second state during monomer incorporation, and where the polymerizing agent changes from the first state to the second state and back again during each monomer incorporation.

A24
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10.(amended) A composition comprising a polymerizing agent including a molecular and/or atomic tag covalently bonded to a site on the polymerase and a monomer including a molecular and/or atomic tag, where at least one of the tags has a detectable property that undergoes a change before, during and/or after monomer incorporation due to an interaction between the polymerizing agent tag and the monomer tag.

A25
1 16.(amended) The composition of claim 12, wherein the monomer comprises a dNTP and the tag
2 is covalently bonded to the β or γ phosphate group.